CHIRPED PULSE MICROWAVE SPECTROSCOPY ON METHYL BUTANOATE

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The microwave spectrum of methyl butanoate has been taken from 8-18 GHz using a chirped pulse spectrometer. This molecule is a model biofuel, and its thermal decomposition products are of interest due to its many dissociation channels. As a preliminary step before such pyrolysis studies, we have examined the jet cooled spectrum of methyl butanoate in a chirped pulse spectrometer, which shows a very rich spectrum. Several conformers have been identified, each with tunneling splittings in the methyl ester group due to internal rotation. These spectra have been fit to obtain rotational constants, relative populations, and methyl rotor barriers for each conformational isomer. The results of these studies are compared to high level calculations.